

## CLAIMS

1. A communication handover method for use in a mobile node in a communication system in which a plurality of access routers each constituting a subnet are connected together over a communication network and at least one or more of access points forming a unique communication available area are connected to each of the plurality of access routers, the mobile node being so structured as to communicate with the access router connected with the access points, through radio communication with the access points within the communication available area, the communication handover method comprising:
  - 15 a storing step of storing correspondence information describing a correspondence relationship between information on the access points and information on the access router connected to the access points into a predetermined information storage means of the mobile node;
  - 20 a reception step of receiving information on another access point from the another access point when communication is switched over from an access point currently in communication to the another access point;
- 25 an acquisition step of acquiring information on that

access router to which the another access point is connected from the correspondence information based on the information on the another access point received at the reception step;

5           a determination step of determining from the information on the access router acquired at the acquisition step whether or not changing address information currently assigned in connection of the subnet is necessary when communication is switched from  
10          the access point currently in communication to the another access point;

15          an address hold control step of performing such control as to continuously use the currently assigned address information upon determination that it is not necessary to change the address information at the determination step;

20          an address generation step of generating address information in the subnet constituted by the access router from the information on the access router acquired at the acquisition step upon determination that it is necessary to change the address information at the determination step; and

25          an address information transmission step of acquiring address information on the access router from the correspondence information, creating a message

including the address information generated at the address generation step, and transmitting the message to the access router through the access point currently in communication.

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2. The communication handover method according to claim 1, comprising a process switching step of performing a process based on conventional handover when the information on the access router to which the another access point is connected cannot be acquired from the correspondence information at the acquisition step.

3. The communication handover method according to claim 1, comprising:

15 a correspondence information reception step of receiving information relating to a change in the correspondence information from a predetermined communication apparatus which manages the correspondence information or the access router; and

20 a correspondence information update step of updating the correspondence information stored in the predetermined information storage means with the information relating to the change in the correspondence information.

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4. The communication handover method according to  
claim 3, comprising an information check step of  
periodically checking the predetermined communication  
apparatus or the access router to see whether or not  
there is information relating to a new change of the  
correspondence information.

5. The communication handover method according to  
claim 1, wherein a link layer address of the access point  
is used as the information on the access point, and a  
link layer address of the access router, a prefix length  
of the subnet constituted by the access router, and an IP  
address of the access router are used as the information  
on the access router.

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6. The communication handover method according to  
claim 1, wherein the correspondence information describes  
a correspondence relationship between the information on  
the access point in the subnet to which the mobile node  
20 is currently connected, and the information on the access  
router, and a correspondence relationship between the  
information on the access point in the subnet present in  
a neighborhood of the subnet to which the mobile node is  
currently connected and the information on the access  
25 router.

7. The communication handover method according to  
claim 1, structured in such a way that the correspondence  
information describes whether or not an additional  
5 service early establishment function of realizing early  
establishment of a mobility supported additional service  
is implemented in the access router, and

in such a way as to determine whether or not, at the  
address information transmission step, the access router  
10 has the additional service early establishment function  
implemented therein, and transmit the message only to the  
access router having the additional service early  
establishment function implemented therein.

15 8. The communication handover method according to  
claim 7, structured in such a manner as to determine  
whether or not NSIS which enables early establishment of  
the mobility supported additional service is implemented  
in the access router.

20 9. The communication handover method according to  
claim 7 or 8, wherein the additional service is a QoS  
guarantee.

25 10. A communication handover program for allowing a

computer to execute the communication handover method as recited in claim 1.

11. A communication message processing method for use  
5 in at least one of a plurality of access routers in a communication system in which the plurality of access routers each constituting a subnet are connected together over a communication network, at least one or more of access points forming a unique communication available area are connected to each of the plurality of access routers, and a mobile node present in the communication available area is structured in such a manner as to communicate with the access router connected with the access points, through radio communication with the  
10 access points, the communication message processing  
15 access points, the communication message processing method comprising:

a validity checking step of, when a message including address information in a subnet generated by the mobile node is received from the mobile node not in  
20 present in the subnet constituted by the access router, checking a validity of the address information included in the message; and

an additional service starting step of starting an establishment process of an additional service to the  
25 mobile node when it is checked that the address

information is valid at the validity checking step.

12. The communication message processing method  
according to claim 11, wherein the access router has NSIS  
5 implemented which enables establishment of a mobility  
supported additional service.

13. The communication message processing method  
according to claim 11 or 12, wherein the additional  
10 service is a QoS guarantee.

14. A program for processing a communication message  
that allows a computer to execute the communication  
message processing method according to claim 11.  
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15. A communication system structured in such a way  
that a plurality of access routers each constituting a  
subnet are connected together over a communication  
network and at least one or more of access points forming  
20 a unique communication available area are connected to  
each of the plurality of access routers, and a mobile  
node present in the communication available area  
communicates with the access router connected with the  
access points, through radio communication with the  
25 access points,

the mobile node has correspondence information storage means for storing correspondence information describing a correspondence relationship between information on the access points and information on the  
5 access router connected to the access points, and

when communication is switched over from an access point currently in communication to another access point, information on that access router to which the another access point is connected is acquired based on the  
10 information on the another access point received from the another access point by referring to the correspondence information, address information in the subnet constituted by the access router is generated from the acquired information on the access router and the address  
15 information in the subnet is transmitted to the access router through an access point currently in communication.

16. The communication system according to claim 15,  
structured in such a way as to execute a process by  
20 conventional handover when the mobile node cannot acquire the information on the access router to which the another access point is connected, from the correspondence information.

25 17. The communication system according to claim 15 or

16, structured in such a way that a predetermined communication apparatus which manages the correspondence information is connected to the communication network and and is so structured as to transmit the correspondence  
5 information to the mobile node.

18. The communication system according to claim 15, structured in such a way that when a change in the information on the access point or the information on the 10 access router occurs, the predetermined communication apparatus receives the information on the access point or the information on the access router after generation of the change, from the access router, updates the correspondence information managed by the predetermined 15 communication apparatus, and informs the mobile node that the correspondence information has been changed.